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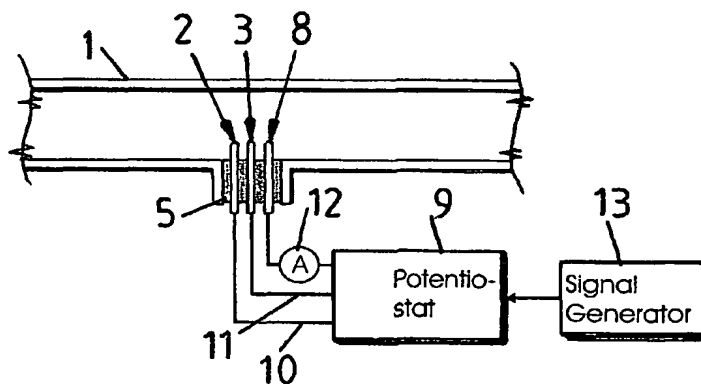
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(54) Title: METHOD AND APPARATUS FOR MONITORING CORROSION



(57) **Abstract:** A method and apparatus for monitoring the corrosion of a working electrode. An alternating perturbation signal of at least one frequency is applied to the working electrode. A signal representing the response of the working electrode to the applied perturbation signal is monitored. The monitored signal is filtered to separate out a signal representing the response of the electrode to the or each applied frequency and an electrochemical noise output signal representative of corrosion of the working electrode. The potential of the working electrode relative to a reference electrode may be controlled by controlling the supply of current through an auxiliary electrode. The supplied current is then monitored and the monitored current is filtered. Alternatively, a known alternating current may be applied between the working electrode and an auxiliary electrode and fluctuations in the potential of the working electrode relative to a reference electrode may be monitored, the monitored potential being filtered. A measure of the impedance of the working electrode is derived from the applied perturbation signal and the response signal. Both electrochemical potential noise and electrochemical current noise measurements may be derived from the known applied potential and the measured current or the known applied current and the monitored potential.



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